

# New records of *Cryptoblepharus cursor* Barbour, 1911 (Squamata, Scincidae, Eugongylinae) from Java, Indonesia

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**Abstract.** The Lombok Snake-eyed Skink, *Cryptoblepharus cursor* Barbour, 1911 has been recorded in South Java prior to 1940. However, information on its population on the island are scarce. This study presents new records of *C. cursor* from Java. Visual Encounter Survey were conducted to observe habitat selections and collect skinks as voucher specimens. South Javan *C. cursor* are restricted to sandy littoral zones with *Ipomoea pescaprae* (L.) R.Br. – *Spinifex littoreus* (Burm.f.) Merr. whereas Lombok *C. cursor* are saxicolous, preferring rocky coasts. They also differ from the scansorial *C. balinensis* Barbour, 1911, a sympatric congener from Java.

**Key words.** Reptile, Snake-eyed Skink, biogeography, vicariance, new record

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## INTRODUCTION

*Cryptoblepharus cursor* Barbour, 1911, Lombok Snake-eyed Skink is native to Bali, Lombok, Tengah, and Sangkarang, as well as small islands off Sulawesi, Indonesia, and is associated with coastal habitats (Horner 2007). This skink species was originally thought to be a subspecies to *C. boutonii* Desjardin, 1831, but it has since been recognised as a separate species (Greer 1974; Horner 2007). More recently a subspecies of *C. cursor*, *C. c. larsonae* Horner, 2007 has been recognised from islands west of Sulawesi (Horner 2007; Koch 2011). However, Brongersma (1940) mentioned snake-eyed skinks have been observed from Muara Bogowonto, an estuary separating Congot and Kadilangu, Daerah Istimewa Yogyakarta. Moreover, our past fieldtrip done in 1976 found skinks in Jawa Barat (= West Java) that are similar to *C. cursor*. Furthermore, additional reports of skinks identified as *C. cursor* from Jawa Tengah (= Central Java), Daerah Istimewa Yogyakarta, and Jawa Timur (= East Java) provinces are available in the online citizen-scientist platform iNaturalist (Appendix, Table A1), which support the old literature record. It is possible that these skinks colonised Java by rafting on vegetation debris, as known for other lizards (Rocha et al. 2006). Nevertheless, reports of *C. cursor* from outside the published range of the species (Horner 2007; Koch 2011) in Java necessitated investigation.

More studies on *Cryptoblepharus* species, such as *C. cursor*, are necessary to better understand the ecology and diversity of this widespread genus (Blom et al. 2019). Recent studies by Dodge et al. (2023) and Oliver et al. (2018) have mainly been focused on the conservation of the previously extinct-in-wild *C. egeriae* Boulenger, 1889, which is endemic to Christmas Island. Horner (2007) and Rocha et al. (2006) mention various *Cryptoblepharus* species in their annotated lists. *Cryptoblepharus cursor*, both as a recognised species or as a subspecies in the past, has only been mentioned few times in the literature: Barbour (1911), Mertens (1930, 1931), and Horner (2007).

In this study, we present new records of *C. cursor* in Jawa Barat, and we confirm the presence of this species in Jawa Tengah and Daerah Istimewa Yogyakarta provinces. These findings provide additional insights into the geographic range of *C. cursor* and may help in studying the historic pathways of colonisation (Blom et al. 2019) of the genus, which has at least 53 known species (Horner 2007; Uetz and Hallermann 2024). We contribute new data to the future study of the cryptic diversity of the genus *Cryptoblepharus*.



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METHODS

Surveys were conducted in the provinces of Daerah Istimewa Yogyakarta and Jawa Tengah from December 2022 to January 2023 and in June 2023; in Jawa Barat, the surveys were conducted in February 2023. Geographic coordinates for each site are provided in Table 1. The westernmost survey site is Batukaras, Jawa Barat, while the easternmost is Karangwuni, Daerah Istimewa Yogyakarta (Figure 1). Distribution maps were created using QGIS Desktop v. 3.34.4 and with the Esri Light Gray Basemap, which is accessible via the HCMGIS v. 24.1.12 plugin (Quach 2024).

We conducted visual encounter surveys to observe and collect skinks and ecological data; we used our bare hands to capture specimens (Inger 1994; Crump and Scott 1994; Fitzgerald 2012; Foster 2012). Collected specimens were fixed in 4% formaldehyde and preserved in 70% ethanol (Foster 2012). Specimen identifications were done based on morphological parameters of *C. cursor* from primarily Iskandar (unpublished) and additionally Horner (2007). The following measurements were recorded for morphometric data: snout–vent length (SVL), tail length (TL), upper arm length (UA), lower arm length (LA), palmar length (HA), forelimb length (FLL), upper leg length (UL), lower leg length (LL), plantar length (FL), and hindlimb length (HLL) following Iskandar (unpublished). Likewise, the following scales were counted to obtain meristic data: scales around thickest part of trunk (BSC), paravertebral scales (vert), ventral scales (vent), subdigital lamellae of fingers and toes 1–5, as well as lamellar formula based on number of subdigital lamellae on each segment of 4<sup>th</sup> toe (Iskandar unpublished).

Prior to their collection, we observed the live skinks for any noteworthy behaviours. All preserved specimens from recent surveys have been transferred to Laboratorium Identifikasi dan Determinasi II, Sekolah Ilmu dan Teknologi Hayati, Institut Teknologi Bandung, Bandung, Jawa Barat, Indonesia under the permit Surat Angkut Tumbuhan dan Satwa - Dalam Negeri S.08/K.22-SKW.1/SATS-DN/1/2023.

RESULTS

*Cryptoblepharus cursor* Barbour, 1911

Figures 2, 3

**New records.** INDONESIA – DAERAH ISTIMEWA YOGYAKARTA • Kabupaten Kulon Progo, Temon, Congot; 07°54' 06"S, 110°02'12"E; 2–3 m elev.; 11.I.2023; R.A. Sugianto leg.; hand collection; 8 ♂, 1 ♀, 16 spec., RX-01 to RX-08 and RY-01 to RY-08 – JAWA TENGAH • Kabupaten Purworejo, Grabag, Jetis; 07°50'55"S, 109°53'34"E; 1–2 m elev.; 3.VII.2023; R.A. Sugianto obs. – JAWA BARAT • Kabupaten Pangandaran, Cijulang, Batukaras; 07°44' 09"S, 108°29'54"E; 1–2 m elev.; 18.II.2023; R.A. Sugianto leg.; hand collection; 1 spec., RK-01.

**Identification.** *Cryptoblepharus cursor* from Java are small, slender skinks with a SVL of 30–45 mm. The tail is longer than the SVL, and some specimens have intact tails reaching over 100 mm in length. Dorsal coloration is gleaming dark brown or bronze with grey-silver ciliary and dorsal stripes. The venter is pale white or yellowish white (Figures 2, 3A). Few juveniles were observed, each were well developed and appeared as miniature versions of adults without apparent superficial differences. More detailed morphometric and meristic characteristics of *C. cursor* from Java, as well as a few related species, are presented in Table 2. The new specimens collected in this study are listed in Appendix, Table A2

Table 1. Geographic coordinates of the survey sites.

No.	Locality	Geographic coordinates
Jawa Barat, Indonesia		
1	Batukaras	07°44'09"S, 108°29'54"E
2	Bojong Salawe	07°42'44"S, 108°30'09"E
3	Batu Hiu	07°41'53"S, 108°31'04"E
4	Cikembulan	07°41'02"S, 108°36'34"E
5	Pangandaran	07°41'15"S, 108°38'25"E
Jawa Tengah, Indonesia		
6	Jetis	07°50'55"S, 109°53'34"E
Daerah Istimewa Yogyakarta, Indonesia		
7	Pasir Mendit	07°53'41"S, 110°01'11"E
8	Kadilangu	07°53'53"S, 110°01'42"E
9	Congot	07°54'06"S, 110°02'12"E
10	Glagah	07°54'46"S, 110°04'04"E
11	Karangwuni	07°55'14"S, 110°05'03"E

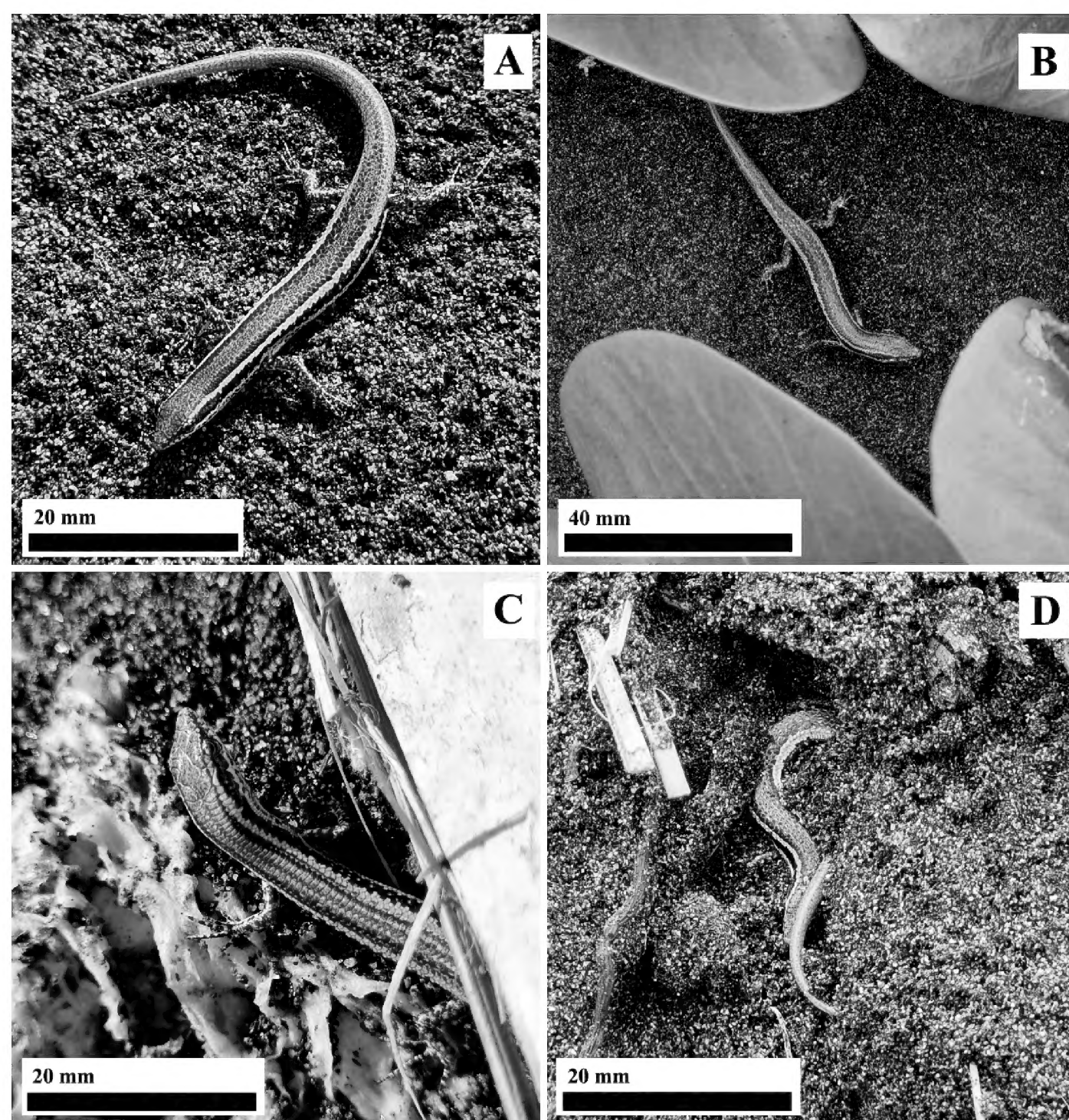


**Figure 1.** Locations where *C. cursor* have been recorded. **A.** Jawa Barat. **B.** Jawa Tengah and Daerah Istimewa Yogyakarta. **C.** Jawa Timur. **D.** Previous records of *C. cursor* (Horner 2007; Iskandar unpublished).



**Figure 2.** *Cryptoblepharus cursor* specimen RK-01 from Batukaras, Jawa Barat, Indonesia.





**Figure 3.** Behaviour of *Cryptoblepharus cursor* at Daerah Istimewa Yogyakarta, Indonesia. **A.** Basking in the open. **B.** Hiding under littoral vegetation. **C.** Hiding under debris. **D.** Hiding in loose sand.

**Figure 4.** Littoral habitat of *Cryptoblepharus cursor* at Karangwuni, Daerah Istimewa Yogyakarta, Indonesia.



**Geographic range of *Cryptoblepharus cursor* in Java.** *Cryptoblepharus cursor* have been found along the southern shorelines of Jawa Barat, Jawa Tengah, and Daerah Istimewa Yogyakarta, as well as two sites in Jawa Timur (= East Java) provinces (Figure 1). The population in Jawa Barat was found along a 19 km stretch of shore, and the skinks from Jawa Tengah and Daerah Istimewa Yogyakarta were found along at least 45 km of shore with similar conditions.

On the other hand, in Jawa Timur, *C. cursor* was found at two regions, on the coast of Taman Nasional Alas Purwo at the south-east tip of the island and at a small area at the eastern shore of Kabupaten Banyuwangi (Iskandar, unpublished; Appendix Table A1).

**Table 2.** Morphometrics and meristics comparison of select *Cryptoblepharus* species. SVL = snout-vent length, TL = tail length, UA = upper arm length, LA = lower arm length, PL = palmar length, FLL = forelimb length, UL = upper leg length, LL = lower leg length, FL = foot length, HLL = hindlimb length, BSC = body scale count around midsection, vert = vertebral scales, ven = ventral scales, n<sup>th</sup> finger or toe = subdigital lamellae count of n<sup>th</sup> finger or toe.

	<i>C. cursor</i> (Jawa Barat)			<i>C. cursor</i> (Daerah Istimewa Yogya- karta)			<i>C. cursor</i> (Jawa Timur)			<i>C. balinensis</i> (Jawa Timur)			<i>C. virgatus</i> (Tanimbar)		
	Observed data (this study)						Comparison data (Iskandar, unpublished)								
	Mean ± SD	Range	<i>n</i>	Mean ± SD	Range	<i>n</i>	Mean ± SD	Range	<i>n</i>	Mean ± SD	Range	<i>n</i>	Mean ± SD	Range	<i>n</i>
SVL (mm)	39.4 ± 0.3	30.0–45.0	47	38.3 ± 2.6	32.5–41.2	16	38.1 ± 2.3	34.0–41.0	7	35.0 ± 0.4	25.5–39.7	11	35.2 ± 0.3	30.0–38.0	11
TL(mm)	46.7 ± 0.7	34.0*–66.0	43	41.7 ± 15.0	6.7*–61.8	16	51.6 ± 2.1	48.0–54.0	7	38.9 ± 0.8	23.2–40.6	6	32.6 ± 1.0	26.0–45.0	6
UA/SVL	10.0 ± 0.7	8.9–12.5	36	11.0 ± 0.5	9.8–11.8	16	10.3 ± 0.7	9.5–11.5	7	13.0 ± 0.9	11.2–14.7	11	9.5 ± 0.3	9.0–9.8	11
LA/SVL	8.2 ± 0.7	7.2–9.8	44	10.1 ± 0.5	9.8–11.8	16	8.2 ± 1.0	6.7–9.7	7	8.4 ± 0.9	6.8–9.5	11	7.5 ± 0.5	6.7–8.3	11
PL/SVL	13.6 ± 1.2	10.1–16.3	45	13.4 ± 1.0	11.7–15.2	16	14.8 ± 0.8	14.2–16.0	7	13.7 ± 1.0	12.0–14.9	11	13.4 ± 0.7	12.0–14.4	11
FLL/SVL	31.6 ± 1.5	28.0–35.0	36	34.5 ± 1.6	31.3–37.4	16	33.4 ± 2.2	30.4–37.0	7	35.0 ± 1.8	31.8–37.1	11	30.4 ± 1.2	28.2–32.4	10
UL/SVL	12.9 ± 0.7	11.6–14.7	27	13.8 ± 0.8	12.4–15.3	16	13.0 ± 0.5	12.8–13.7	7	14.1 ± 0.8	12.9–15.1	11	12.3 ± 0.7	11.0–13.2	11
LL/SVL	10.5 ± 0.6	9.4–11.7	40	12.9 ± 0.7	11.4–14.4	16	10.2 ± 0.7	9.2–11.2	7	9.6 ± 1.0	7.5–11.1	11	9.6 ± 0.4	8.8–10.1	11
FL/SVL	19.7 ± 2.1	16.5–22.9	41	21.3 ± 1.2	19.0–23.4	16	21.4 ± 1.2	19.7–22.9	7	19.8 ± 1.2	18.3–21.4	11	18.1 ± 1.0	16.3–19.7	11
HLL/SVL	42.7 ± 2.0	40.0–48.0	27	47.9 ± 2.2	43.4–51.8	16	44.1 ± 1.6	41.9–46.0	7	43.6 ± 2.6	38.7–47.5	11	40.0 ± 1.6	37.1–42.5	10
BSC	24.3 ± 1.2	22–26	29	22.9 ± 0.9	22–25	16	24.7 ± 0.5	24–25	7	23.7 ± 1.4	20–25	11	21.9 ± 0.3	21–22	11
vert	55.0 ± 1.9	51–59	47	53.2 ± 1.5	51–56	16	58.1 ± 0.9	57–59	7	51.1 ± 2.1	49–54	11	47.9 ± 1.3	46–80	11
ven	64.3 ± 2.3	59–69	24	63.9 ± 1.9	60–67	16	64.0 ± 1.0	62–65	7	61.1 ± 3.5	56–65	11	56.5 ± 2.2	54–61	11
1st finger	5.4 ± 0.5	6–7	46	6.7 ± 0.5	6–7	16	6.0 ± 0.0	6	7	7.2 ± 0.4	7–8	11	6.0 ± 0.0	6	11
2nd finger	9.4 ± 0.5	10–11	46	10.6 ± 0.5	10–11	16	9.7 ± 0.8	9–11	7	12.3 ± 0.5	12–13	11	9.2 ± 0.6	8–10	11
3rd finger	12.2 ± 0.8	11–15	46	13.5 ± 0.7	12–14	16	13.3 ± 1.0	12–15	7	15.2 ± 0.8	14–17	11	12.4 ± 0.5	12–13	11
4th finger	13.6 ± 1.1	12–18	45	15.3 ± 0.5	15–16	16	14.0 ± 0.6	13–15	7	17.6 ± 1.4	15–20	11	14.1 ± 0.6	13–15	11
5th finger	8.4± 0.7	7–10	46	9.2 ± 0.5	8–10	16	9.1 ± 0.4	9–10	7	11.8 ± 0.4	11–12	11	9.5 ± 0.5	9–10	11
1st toe	7.0 ± 0.3	7–9	42	7.7 ± 0.6	7–9	16	7.5 ± 0.6	7–8	7	8.5 ± 0.8	8–10	11	6.7 ± 0.5	6–7	11
2nd toe	11.6 ± 0.6	12–13	42	12.5 ± 0.5	12–13	16	11.5 ± 0.6	11–12	7	13.6 ± 1.0	12–15	11	9.8 ± 0.4	9–10	11
3rd toe	16.0 ± 0.9	15–19	42	16.9 ± 1.0	15–19	16	16.0 ± 0.0	16	7	18.1 ± 0.7	17–19	11	14.3 ± 1.0	13–16	11
4th toe	18.4 ± 0.8	15–21	42	20.0 ± 0.9	18–21	16	18.1 ± 0.4	18–19	7	21.3 ± 1.3	20–24	11	18.4 ± 1.0	17–20	11
5th toe	13.5 ± 0.6	13–16	43	13.8 ± 1.1	12–16	16	13.9 ± 0.7	13–15	7	16.1 ± 1.1	14–17	11	13.6 ± 0.7	12–14	11
Lamellar formula	5-4-4-5	5-4-3-4 6-5-4-6*	10	6-4-4-6	5-4-3-5 6-5-4-6	16	5-3-4-5	5-3-4-5 6-4-5-6	7	7-4-4-5	7-4-4-5 7-5-5-6	10	5-4-4-4	5-4-4-4 6-4-4-5	10

\*Denotes regenerated tail.

**Habitat preference and behaviour.** *Cryptoblepharus cursor* in Jawa Barat, Jawa Tengah, and Daerah Istimewa Yogyakarta are exclusively found in littoral zones with fine sand and in vegetation dominated by *Ipomoea pes-caprae* L. and/or *Spinifex littoreus* (Burm.f.) Merr. (Figure 4). The skinks were observed traversing the sand during daytime starting at around 07:00h to 18:00h with peaks occurring at around 10:00h to 11:00h and 14:00h to 15:00h. They were often found hiding under littoral vegetation and marine debris (Figure 3B, C). They were rarely observed climbing on debris or lower parts of trees. Furthermore, they were never seen on beaches surrounded by rocky cliffs, whether on the surface or on the outcrops. Sometimes the skink utilize ghost-crab (Ocypodinae) burrows around vegetation or sand-filled pieces of debris as alternative shelters. Lastly, when there are no places to take shelter from perceived threats, these skinks burrow into loose sand (Figure 3D). In contrast, individuals from Jawa Timur *C. cursor* inhabit rocky coasts and tend to be saxicolous (Bagaskara 2017; Iskandar unpublished), similar to their counterparts from Lombok (Horner 2007; Iskandar unpublished). Javan *C. cursor* in the wild were not observed feeding on other organisms nor they were observed being consumed on by predators during the survey.

DISCUSSION

**Colonisation of Java by *Cryptoblepharus cursor*.** *Cryptoblepharus cursor* are now found in the southern coasts of Jawa Barat, Jawa Tengah, Daerah Istimewa Yogyakarta, and two sites at Jawa Timur and their predicted range is likely limited to these shorelines (Figure 1), given their observed habitat preference. The subpopulation in Jawa Barat is separated by approximately 800 km from the westernmost tip of Lombok.



However, the subpopulation throughout Jawa Tengah and Daerah Istimewa Yogyakarta is at least about 620 km distant from Lombok. The two sites inhabited by *C. cursor* in Jawa Timur, meanwhile, are closer to Lombok, which is about 160 km away. *Cryptoblepharus cursor* is known to traverse coastal habitats (Horner 2007; Iskandar unpublished). This species and *C. keiensis* Roux, 1910 are similar in this regard, although the former may venture deeper inland (Iskandar unpublished). *Cryptoblepharus cursor* might have colonised the islands by rafting, a pathway that allows for oceanic dispersal of terrestrial reptiles (Rocha et al. 2006; Reilly et al. 2019). It is also possible that *C. cursor* spread to Java through human-mediated introduction events, like some other reptile species in the archipelago (Reilly et al. 2019). Five species belonging to order Squamata, namely the *Lycodon capucinus* Boie, 1827, *Lycodon subcinctus* Boie, 1827, *Trimeresurus insularis* Kramer, 1877, *Eutropis multifasciata* (Kuhl, 1820), and *Gekko gecko* (Linnaeus, 1758), have spread throughout Nusa Tenggara, either through natural or anthropogenic means, in relatively recent times (Reilly et al. 2019). Nevertheless, without known nucleotide diversity of *Cryptoblepharus* of Java to determine the phylogenetic relationships and ages of these species, the true nature of their colonisation cannot be ascertained as of now.

**Natural history of Javan *Cryptoblepharus cursor*.** Brongersma (1940) mentioned that Felix Kopstein observed snake-eyed skinks from Daerah Istimewa Yogyakarta and later, our previous surveys in 1976 found snake-eyed skinks similar to *C. cursor* in Jawa Barat and Jawa Timur. Our past fieldtrip made a single observation along approximately 19 km of the southern shoreline of Jawa Barat and our February 2023 fieldtrip resurveyed these areas. The sandy shorelines inhabited by the skinks from Jawa Barat, Jawa Tengah, and Daerah Istimewa Yogyakarta span 20–100 m wide and some of the areas were frequently visited by tourists, fishermen, and aquaculture caretakers, while in other areas, human activities were negligible. The area to the west of Batukaras, Jawa Barat, consists of vertical rocky outcrops, and is not suitable habitat for *C. cursor*.

The sand-dwelling of *C. cursor* from the three main survey areas were only found in the intertidal zone, especially where some marine debris is present. The habitat of this species is dominated by *Ipomoea pes-caprae*–*Spinifex littoreus* formations (Figure 4). This skink species has never been observed outside the intertidal zone, which is similar to the coast-inhabiting *C. schlegelianus* Mertens, 1928 of Timor (Brongersma 1940), *C. balinensis sumbawanus* Mertens, 1928 (Mertens 1928, 1930, 1931), and perhaps *C. richardsi* Horner, 2007 of Papua (Shea and Tallowin 2015). *Cryptoblepharus cursor* from Jawa Timur differs in habitat selection compared to the south Javan subpopulations in that it is saxicolous and readily climbs rocks like their counterparts from Lombok (Horner 2007; Iskandar unpublished). *Cryptoblepharus cursor* may also climb low vegetation, an individual from Batukaras, Jawa Barat during the 2023 survey was seen climbing the trunk of a tree about 30 cm from the ground. Moreover, *C. cursor* near Sangsit, Bali were observed living in proximity to human habitations and on tree trunks, which is consistent with Horner (2007). Nevertheless, the collective behaviour and habitat preference of *C. cursor* differs from *C. balinensis*, another species from Java. *Cryptoblepharus balinensis* from around Surabaya and Madura, Jawa Timur, as well as on Bali, has been observed to climb trees, similar to *C. keiensis* from Maluku (Iskandar unpublished) and *C. pannosus* Horner, 2007, formerly known as *C. carnabyi* (Börner and Schüttler 1981). *Cryptoblepharus balinensis* additionally have been found up to 30 km inland in Jawa Timur and up to 800 m above sea level in Bali (Iskandar, unpublished).

Our observations suggest that *C. cursor* from Jawa Barat, Jawa Tengah, and Daerah Istimewa Yogyakarta start their activity around 07:00h and conclude at 18:00h with major peaks at approximately 10:00–11:00h and again at 14:00–15:00h, lasting for about one hour. When approached, South Javan *C. cursor* readily flee under debris and *Ipomoea pes-caprae*–*Spinifex littoreus* vegetation, as well as into the burrows of terrestrial crustaceans in sand and among plant roots. We noted that when sheltering inside burrows, *C. cursor* always turn their heads towards the burrow openings. Generally, *C. cursor* does not seek shelter above debris, but an observation in Batukaras showed that when there is nowhere else to hide, *C. cursor* may climb the base of a tree if it has crevices. Additionally, both ex-situ and in-situ observations showed that when cornered, *C. cursor* will bury themselves under the surface of loose sand for a short period of time or hide inside sand-filled coconut husks for longer periods. In captivity collected skinks exhibited similar behaviour during the day and returned to the surface later. In comparison, *C. balinensis* usually hides under leaf litter, branches, and bark while in captivity (Iskandar unpublished), but they never completely bury themselves in loose sand (Figure 3D). Lastly, we observed our captured specimens resting beneath sand during the night, but we could not confirm this behaviour in the wild. Future research investigating the genetic diversity of *C. cursor* from Java and beyond is recommended to determine whether these subpopulations represent separate species.

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S.08/K.22-SKW.1/SATS-DN/1/2023 for the transfer specimens from Yogyakarta, Daerah Istimewa Yogyakarta to Bandung, Jawa Barat, Indonesia.

## ADDITIONAL INFORMATION

### Conflict of interest

The authors declare that no competing interests exist.

### Ethical statement

No ethical statement is reported.

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### Author contributions

Conceptualization: DTI. Data curation: RAS, DTI. Formal analysis: RAS, DTI. Funding acquisition: RAS, DTI. Investigation: RAS, DTI, TSS. Methodology: RAS, DTI. Resources: RAS, DTI. Supervision: TSS. Visualization: RAS. Project administration: RAS, TSS. Software: RAS. Validation: DTI, TSS. Writing – original draft: RAS, DTI. Writing – review and editing: RAS, TSS.

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### Data availability

All data that support the findings of this study are available in the main text.

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APPENDIX

Table A1. Previous records of *Cryptoblepharus cursor* in Indonesia

No.	Province	Locality	Geographic coordinates	Habitat	Reference
1	Nusa Tenggara Barat	Ampenan, Lombok	Not provided	Not described nor visible	Barbour 1911
2	Sulawesi Selatan	Pulau Samalona	05°08'S, 119°21'E	Sandy beach with coral debris	Horner 2007
4	Bali	Unspecified	Not provided	Not described nor visible	Iskandar unpublished
5	Jawa Timur	Alas Purwo National Park	Not provided	Rocky beach	Iskandar unpublished
6	Jawa Timur	Pancur, Alas Purwo National Park	08°40'34"S, 114°22'21"E	Rocks and driftwood	Bagaskara 2017
7			08°40'37"S, 114°22'21"E	Uncertain, not pictured	Idrissa 2019
8		Plengkung, Alas Purwo National Park	08°43'58"S, 114°20'55"E	Rocky beach	Bajger 2022
9		Ngagelan, Alas Purwo National Park	08°37'18"S, 114°18'51"E	Beach with herbaceous vegetation	Supartha 2023a
10		Cemara, Banyuwangi	08°15'51"S, 114°22'20"E	Coarse sand, various debris	Supartha 2023b
11	Jawa Tengah	Muara Puncu	07°51'17"S, 109°54'48"E	Fine sands, wood debris, <i>Spinifex littoreus</i>	Fathoni 2022
12			07°51'13"S, 109°54'41"E	Fine sands, bamboo debris	Dhiya'ulhaq 2021a
13			07°51'13"S, 109°54'42"E	Fine sands, bamboo debris	Dhiya'ulhaq 2021b
14			07°51'11"S, 109°54'41"E	Fine sands, bamboo debris	Dhiya'ulhaq 2021c
15		Roro Inten	07°51'53"S, 109°56'33"E	Fine sand	Nurshafwan 2022
16	Daerah Istimewa Yogyakarta	Pasir Mendit	Not provided	Sand dunes	Brongersma 1940
17			07°53'36"S, 110°01'11"E	Fine sand, <i>Spinifex littoreus</i>	Fxpranoto 2017
18			07°53'36"S, 110°01'12"E	Fine sand, <i>Spinifex littoreus</i>	Akbar 2017
19			07°53'36"S, 110°01'11"E	Fine sand, <i>Spinifex littoreus</i>	Ramadani 2017
20	Maluku	Pulau Leti	08°11'32"S, 127°41'10"E	Uncertain, not shown	Ramdani 2023
21	Private location		Not available	Fine sand, <i>Spinifex littoreus</i>	Asti 2017

Table A2. List of *Cryptoblepharus cursor* specimens examined in this study.

Field tag	Locality	Field tag	Locality
RX-01	Cogot, Daerah Istimewa Yogyakarta	RY-02	Kadilangu, Daerah Istimewa Yogyakarta
RX-02	Cogot, Daerah Istimewa Yogyakarta	RY-03	Kadilangu, Daerah Istimewa Yogyakarta
RX-03	Cogot, Daerah Istimewa Yogyakarta	RY-04	Kadilangu, Daerah Istimewa Yogyakarta
RX-04	Cogot, Daerah Istimewa Yogyakarta	RY-05	Kadilangu, Daerah Istimewa Yogyakarta
RX-05	Cogot, Daerah Istimewa Yogyakarta	RY-06	Kadilangu, Daerah Istimewa Yogyakarta
RX-06	Cogot, Daerah Istimewa Yogyakarta	RY-07	Kadilangu, Daerah Istimewa Yogyakarta
RX-07	Cogot, Daerah Istimewa Yogyakarta	RY-08	Kadilangu, Daerah Istimewa Yogyakarta
RX-08	Cogot, Daerah Istimewa Yogyakarta	RK-01	Batukaras, Jawa Barat
RY-01	Kadilangu, Daerah Istimewa Yogyakarta		